AMSAT News Service Weekly Bulletins
Issue: ANS-328
Date: 2019-11-24
Sources: amsat-ans-2019-ans-328-weekly-hyperkitty-71830c7a4e.txt

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AMSAT NEWS SERVICE
ANS-328

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

In this edition:

* AMSAT Auction Celebrating the 45th Birthday of AO-7 Now Live
* November 18 Marked 2nd Anniversary On Orbit for AMSAT-OSCAR 91
* November 21 Marked 6th Anniverary of AMSAT-UK's AO-73 FUNcube-1
* Proposed FCC Auction of C-Band Increases Competition for Allocations
* Satellite Operations From the Queen Mary on December 14
* Donate to AMSAT Tax-Free From Your IRA
* Open Source 'APRS to Discord' Bridge Project Begins Testing
* ARISS Activities
* Upcoming Satellite Operations
* The Voyage Home: Japan's Hayabusa-2 Probe Heads Back to Earth
* Satellite Shorts From All Over

SB SAT @ AMSAT $ANS-328.01
ANS-328 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 328.01
 From AMSAT HQ KENSINGTON, MD.
DATE 2019-Nov-24
To All RADIO AMATEURS
BID: $ANS-328.01

AMSAT Auction Celebrating the 45th Birthday of AO-7 Now Live

As announced in ANS-321, AMSAT is auctioning off a set of gold-plated AO-7 cufflinks and a 50th Anniversary AMSAT lab coat (size 42R). The auctions are now live on eBay and will conclude shortly after 02:00 UTC on November 26, 2019.

Please bid today at https://www.ebay.com/usr/amsat-na

100% of the proceeds of this auction will go towards Keeping Amateur Radio in Space.

Looking ahead to the future AMSAT tweeted a quick summary of projects

at: https://twitter.com/AMSAT/status/1197528119806169091

1. The University of Washington's HuskySat-1 carrying an AMSAT VHF/ UHF linear transponder was launched to the ISS on Cygnus on Nov 2. After leaving the ISS, Cygnus is expected to deploy HuskySat-1 on or about Jan 13.

2. After completing its science mission, HuskySat-1 will be turned over to AMSAT and the transponder will be made available for amateur use. AMSAT is also working with other CubeSat builders on similar arrangements.

3. RadFxSat-2 (Fox-1E), carrying a VHF/UHF linear transponder and radiation experiments for Vanderbilt University, is complete and awaiting launch on the first commercial flight of Virgin Orbit's LauncherOne no earlier than 1Q 2020.

4. The GOLF program is progressing nicely. The target delivery/integration date of GOLF-TEE is 3Q 2020. More details about the GOLF program are available in the AMSAT Engineering Report from the 2019 Space Symposium. https://youtube.com/watch?v=WWwvhuIaiBA

5. The ARISS next generation InterOperable Radio System is planned for launch to the ISS on the SpaceX CRS-20 mission, scheduled for March 2020.

6. The AMSAT CubeSat Simulator project led by Alan Johnston, KU2Y and Pat Kilroy, N8PK, is generating much interest. Simulators are available for loan for classrooms or events and work is underway to develop CubeSat Simulator kits. http://cubesatsim.com

7. How can you help these projects succeed? Please consider volunteering, joining, donating, and/or purchasing items from the AMSAT store today.

[ANS thanks Paul Stoetzer, N8HM, for the above information]

November 18 Marked 2nd Anniversary On Orbit for AMSAT-OSCAR 91

Happy 2nd Anniversary, AMSAT-OSCAR 91! At 09:47:36 UTC on November 18, 2017, RadFxSat (Fox-1B) launched on a Delta II rocket from SLC-2W at Vandenberg Air Force Base and became AMSAT-OSCAR 91.

RadFxSat (Fox-1B), a 1U CubeSat, is a joint mission of AMSAT and the Institute for Space and Defense Electronics at Vanderbilt University. The Vanderbilt package is intended to measure the effects of radiation on electronic components, including demonstration of an on-orbit platform for space qualification of components as well as to validate and improve computer models for predicting radiation tolerance of semiconductors.

AMSAT constructed the remainder of the satellite including the space frame, on-board computer and power system. The amateur radio package is similar to that currently on orbit on AO-85.

RadFxSat (Fox-1B) was sent aloft as a secondary payload on the United Launch Alliance (ULA) Delta II rocket with the Joint Polar Satellite System (JPSS)-1 satellite. RadFxSat (Fox-1B) is one of five CubeSats making up this NASA Educational Launch of Nanosatellites (ELaNa) XIV mission, riding as secondary payloads aboard the JPSS-1 mission.

Uplink: 435.250 MHz FM (67.0 Hz CTCSS)
Downlink: 145.960 MHz FM

Satellite health and experiment telemetry are downlinked via the Data-Under-Voice (DUV) subaudible telemetry stream, which can be decoded using the FoxTelem software.

Visit the AMSAT-OSCAR 91 web page at:
https://tinyurl.com/ANS-328-AO-91
Make sure you have the latest AMSAT frequencies using the page at:
https://www.amsat.org/two-way-satellites/

[ANS thanks AMSAT for the above information]

November 21 Marked 6th Anniverary of AMSAT-UK's AO-73 FUNcube-1

This week AMSAT-UK and the FUNcube team recalled the events on launch day. A very short time after the launch from Yasny in Russia and within a few minutes from deployment, the very first frame of data from the low power transmitter on board, was detected and decoded by ZS1LS in South Africa. He was able to relay the data over the internet from his Dashboard to the Data Warehouse and the numbers, appeared, as if by magic, at the launch party being held at the RSGB National Radio Centre at Bletchley Park.

After a very brief check out, the FUNcube team were able to switch the transmitter to full power, again at the very first attempt, and were quite amazed at the strength of the signal from the 300mW transmitter on 145.935 MHz. The transponder was then switched on and successfully tested.

The team finished the day with a request to AMSAT-NA for an Oscar number and were delighted to receive the AO73 Oscar 73 designation!

Since then, FUNcube-1, with a launch mass of less than 1kg, has operated continuously with only a very few interruptions. In excess of 32000 orbits, 750 million miles travelled, and with more than 7 million data packets downloaded and stored in the Data Warehouse.

The spacecraft is presently in continuous sunlight and to convert as much of the sun’s thermal energy into RF (to help keep it cool), it remains in continuous high power telemetry mode. We anticipate this situation will continue until early May next after which the team expect to have 3 months with some eclipse periods.

Of course, EO88 – Nayif 1 continues to operate autonomously with the transponder active when in eclipse and JO99 – JY1Sat, which includes image downloads, and which was launched just under a year ago, also remain active on a 24/7 basis.

The FUNcube team still receive many requests for Fitter message uploads for school events…please contact us by email to operations(a)funcube.org.uk giving us at least two weeks notice.

The FUNcube team continue to be very grateful to all the many stations around the world that continue to upload the telemetry that they receive to our Data Warehouse. They really need this data to provide a continuous resource for educational outreach.

Dave Johnson, G4DPZ, network administrator for the FUNcube Data Warehouse provided this update for users of the FUNcube Dashboard Software, "The server addresses warehouse.funcube.org.uk and

data.funcube.org.uk are no longer operational. If you have FUNcube Dashboard(s) using the URL data.funcube.org.uk, please change it to data.amsat-uk.org as forwarding will no longer take place."

+ FUNcube email group https://groups.io/g/FUNcube
+ FUNcube Forum http://forum.funcube.org.uk/
+ FUNcube Website http://www.funcube.org.uk/

[ANS thanks AMSAT-UK for the above information]

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FCC where the satellite operators would keep some of the proceeds while paying taxes on the sale, as well as contributing at least $8 billion to the U.S. Treasury and possible helping fund a rural 5G network.

[ANS thanks Dave Sumner, K1ZZ, Rick Lindquist, WW1ME, the IARU and CNBC for the above information]

Satellite Operations From the Queen Mary on December 14

AMSAT will be supporting the "Ham Radio Day Aboard the Queen Mary", an on-air event which will include satellite operations from the RMS Queen Mary, on Saturday, 14 December 2019. The Queen Mary is at the Port of Long Beach in California, grid DM03vs. The satellite operations will take place from the Queen Mary's Sports Deck, next to the W6RO Wireless Room.

Visitors are welcome, and hams with a copy of their valid amateur license can board the ship for free on 14 December - a $40 value!

QSL cards will be available from the Associated Radio Amateurs of Long Beach (ARALB), using the process detailed at:

http://www.qrz.com/db/W6RO

Satellite contacts do not require the QSO number mentioned on this page. W6RO does not use Logbook of the World.

Additional information about the event posted by The Associated Radio Amateurs of Long Beach and the Queen Mary:

The Associated Radio Amateurs of Long Beach and the Queen Mary invite you aboard the legendary ocean liner for Ham Radio Day Aboard the Queen Mary on Saturday December 14th. Our world-famous station W6RO will be fully staffed all day. Come visit the station, take a turn as a guest operator, or work us on the air and earn our special 40th Anniversary QSL card. In addition, we will have the following special activities:

+ Static displays of the Queen Mary's vintage maritime radio equipment.
+ On-air demonstrations of ham radio 'go-kits' at locations around the ship.
+ Demonstrations of 'eclectic communications gear', including an Aldis lamp and semaphore flags.
+ Demonstrations of satellite ham radio, with actual contacts being made through satellites in orbit.

Basic admission to board the ship is FREE for licensed radio amateurs this day. Simply show your current amateur radio license at the Hotel entrance and come aboard! The free boarding offer is subject to the following restrictions:

+ A valid FCC license document must be presented. (QM personnel will not look you up in the FCC database, QRZ, etc.)
+ Non-licensed friends and family members are not included.
+ Free boarding of the ship does not include admission to the Queen Mary Christmas event.
+ Free boarding does not include parking. Normal parking rates apply. For an alternative, ride the free Long Beach Transit Passport bus,or try LBT's AquaBus or AquaLink boat shuttles to get to the Queen Mary.

We're looking forward to seeing YOU on board! 73

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK, and the Associated Radio
Amateurs of Long Beach and the Queen Mary]

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Contact was successful: Mon 2019-11-18

+ Istituto San Paolo delle Suore Angeliche, Milano, Italy and
Istituto Comprensivo Di Merone – Mons. A. Pirovano, Merone, Italy,
telebridge via W6SRJ
Contact was successful: Thu 2019-11-21

+ MAOU Lyceum No. 39, Nizhny Tagil, Russia, direct via TBD
The ISS callsign is presently scheduled to be RSØISS
The scheduled astronaut is Alexander Skvortsov
Contact is go for 2011-11-30 14:15 UTC

A reminder that the deadline to submit proposals for ARISS contacts to be scheduled between July 1, 2020 and December 31, 2020 is coming up on November 30, 2019. For more information visit https://www.ariss.org/

Possible RSØISS - Inter MAI-75 SSTV activity is tentatively planned for Dec 14 – 15, 2019. Details will follow later, the organization of this SSTV event depends on the necessary EVA activities. No SSTV can take place during EVA activities.

[ANS thanks Charlie Sufana, AJ9N, and David Jordan, AA4KN, ARISS operation team members, for the above information]

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radio package, including two-way communication capability, to be carried on-board Gateway in lunar orbit.
Support AMSAT's projects today at https://www.amsat.org/donate/

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Leal and Antonio Masturzo about the amateur radio project on the ISS. Did you know you can use amateur radio to talk to astronauts in space? Ken Ernandes is part of the team building the next upgraded communication station to be flown on the ISS this coming year. The program is primarily intended by NASA to promote STEAM in schools. There is an application process to get a scheduled school contact and he would be happy to work with any body on the application process. Listen on the link at: https://tinyurl.com/ANS-328-WFIT-Interview

+ NASA released their latest software catalog offering FREE NASA Technology software packages that are applicable to academic research, engineering development, business applications & more! NASA Press Release: https://tinyurl.com/ANS-328-NASA-Software-Press Access the software at: http://software.nasa.gov

+ Explore student STEM opportunities, downloads, mission information and Artemis Student Challenges on NASA's STEM Engagement pages at: https://www.nasa.gov/stem/artemis.html - then - try your hand at driving a Mars rover: https://spaceplace.nasa.gov/explore-mars/en/

+ John Brier, KG4AKV, wrote, "A woman in Israel recently contacted me about including some of my videos in a video she was going to make about how to view the ISS. Well, she just uploaded that video and I have to say, it is pretty good: https://www.youtube.com/watch?v=laQ9VEJJmpU (To turn on English subtitles while viewing YouTube on the web/ desktop, click the CC button in the bottom right corner of the video. On mobile, tap the three dots in the top right and then tap captions) - via John Brier, KG4AKV

+ Paul Wade, W1GHZ, author of the W1GHZ Microwave Antenna Book says he has added an update of Chapter 7, Slot Antennas, and included an improved 32-bit version of the HDL_ANT program for Windows 7 and 10. Access the book at: http://w1ghz.org/antbook/preface.htm Click on the 'Table of Contents' link to continue. (Paul Wade, W1GHZ via the microwave list)

+ Scott Manley posted a video showing the effect if all satellites in orbit were visible. There are over ten thousand satellites in orbit, but only the largest ones in low earth orbit are visible in the hours just after sunset and before sunrise. What would the sky look like if you could see everything in space? He took satellite data and rendered a view of the night sky for an 'average' viewer in North America. View the satellites at: https://youtu.be/dJNGi-bt9NM (via Scott Manley's YouTube channel https://www.youtube.com/channel/UCxzC4EngIsMrPmbm6Nxvb-A)

+ Voyager's transmitters use just 23 watts, roughly the same as an incandescent refrigerator bulb, yet we are able to interpret the 0.1 billion-billionth of a Watt that makes it to earth from 11 billion kilometers away. An article at wired.com explains: https://www.wired.com/2013/09/vintage-voyager-probes/

+ AMSAT-LU (Argentina) plans to operate their WSPR buoy when it is deployed between November 25 through December 12, weather condition permitting. The WSPR beacon will transmit on 14.095,6 MHz with 900 mW, callsign LU7AA. The beacon will be active for 2 minutes ON followed with 8 minutes of standby. They appreciate WSPR reception reports to wsprnet.org which will qualify you for an award certificate: http://lu7aa.org.ar/wspr.asp AMSAT-LU Buoy Project page can be found at: http://amsat.org.ar/?f=boya APRS tracking can be found at: http://aprs.fi?call=lu7aa-8

+ Versions 1.46 and 1.47 (to address a bug fix) of the Magic-Eye

Plugin for SDRSharp has been released:
https://github.com/BlackApple62/SDRSharp-Magic-Eye-Plugin/releases
This plug-in adds an old-style "Magic Eye", or "Cat's Eye" to SDR# software (available via www.airspy.com) This release adds an analog-style SNR Meter. This Plugin, is compiled for 32bit platform, with .NET Framework version 4.6. It may not run on SDR# versions older than r1362 (14 Sept 2015) - via airspy.com and GitHub

+ If you've been kept up at night trying to find a solution to the chaotic three-body problem access a paper, "Newton vs the machine: solving the chaotic three-body problem using deep neural networks" from: https://arxiv.org/abs/1910.07291 - and if you're not sure what is the significance of this check out an explanation posted at: https://en.wikipedia.org/wiki/Three-body_problem

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and remember to behave and to help keep amateur radio in space,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM
k9jkm at amsat dot org